

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

Masahiko Ishida

Serial No.: Unknown

Group Art Unit: Unknown

Filed: March 22, 2006

Examiner: Unknown

For: METHOD OF PRODUCING A CARBON  
NANOTUBE AND A CARBON NANOTUBE  
STRUCTURE (As Amended)

Box Preliminary Amendment  
Commissioner for Patents  
PO Box 1450  
Alexandria, Virginia 22313-1450

PRELIMINARY AMENDMENT UNDER 37 C.F.R. §1.114

Sir:

Prior examination on the merits please amend the above-identified patent application as follows:

**Amendments to the Title:** Amendments to the specification begin on page 2 of this paper.

**Amendments to the Claims:** Amendments to the claims are indicated by the notation “currently amended” in the listing of claims beginning on page 3 of this paper.

**Remarks:** The “REMARKS” section begins on page 7 of this paper.

**Amendments to the Title:**

Please note that the title of the PCT application METHOD FOR PREPARING CARBON NANOTUBE AND CARBON NANOTUBE STRUCTURE has been amended in the present application to be METHOD OF PRODUCING A CARBON NANOTUBE AND A CARBON NANOTUBE STRUCTURE.

**Listing of the Claims:**

The following is a complete listing of all the claims in the application, with an indication of the status of each:

- 1        1 (Original). A method of producing a carbon nanotube, comprising:  
2                preparing a carbon nanotube by introducing a catalyst substance  
3        into a carbon structure;  
4                making the catalyst substance move in the carbon structure; and  
5                crystallizing the trail region.
- 1        2 (Original). The method of producing a carbon nanotube according to  
2        Claim 1, wherein said crystallizing said carbon structure is performed  
3        after said carbon structure is fixed on a predetermined position of said  
4        substrate.
- 1        3 (Currently Amended). The method of producing a carbon nanotube  
2        according to claim 1 ~~or 2~~, wherein said carbon structure is heated when  
3        said catalyst substance is moved in said carbon structure.
- 1        4 (Original). The method of producing a carbon nanotube according to  
2        claim 3, wherein at least a part of said catalyst substance is liquefied by  
3        heating said carbon structure.
- 1        5 (Currently Amended). The method of producing a carbon nanotube  
2        according to ~~any one of claims 1 to 4~~ claim 1, wherein said carbon  
3        structure is formed by a vapor-phase deposition method of using a charged  
4        particle beam as excitation source.
- 1        6 (Currently Amended). The method of producing a carbon nanotube  
2        according to ~~any one of claims 1 to 4~~ claim 1, wherein said carbon

3 structure is prepared by a vapor-phase deposition method of using an  
4 aromatic hydrocarbon compound as precursor material.

1 7 (Currently Amended). The method of producing a carbon nanotube  
2 according to ~~any one of claims 1 to 6~~ claim 1, wherein said carbon  
3 structure is a resist pattern.

1 8 (Currently Amended). The method of producing a carbon nanotube  
2 according to ~~any one of claims 1 to 7~~ claim 1, wherein said carbon  
3 structure is a linear structure and said catalyst substance is moved along  
4 said carbon structure.

1 9 (Currently Amended). The method of producing a carbon nanotube  
2 according to ~~of~~ claim 8, wherein said catalyst substance is a catalyst  
3 particle and the diameter of said catalyst particle is 0.5 to 3 times as large  
4 as the diameter of said linear structure.

1 10 (Original). A method of producing a carbon nanotube, comprising:  
2 preparing a substrate;  
3 forming a carbon structure at a position separated from the surface  
4 of the substrate;  
5 preparing a carbon nanotube by making the catalyst substance  
6 move in the carbon structure; and crystallizing the trail region.

1 11 (Original). The method of producing a carbon nanotube  
2 according to claim 10, wherein said carbon structure is heated when said  
3 catalyst substance is moved in the carbon structure.

1 12 (Original). The method of producing a carbon nanotube  
2 according to claim 11,

3                    wherein at least part of said catalyst substance is liquefied by  
4                    heating said carbon structure.

1                    13 (Currently Amended).    The method of producing a carbon  
2                    nanotube according to ~~any one of claims 10 to 12~~ claim 10,  
3                    wherein said carbon structure is formed by a vapor-phase  
4                    deposition method of using a charged particle beam as excitation source.

1                    14 (Currently Amended).    The method of producing a carbon  
2                    nanotube according to ~~any one of claims 10 to 12~~ claim 10,  
3                    wherein said carbon structure is prepared by a vapor-phase  
4                    deposition method of using an aromatic hydrocarbon compound as  
5                    precursor material.

7                    15 (Currently Amended).    The method of producing a carbon  
8                    nanotube according to ~~any one of claims 10 to 14~~ claim 10,  
9                    wherein said carbon structure is a resist pattern.

1                    16 (Currently Amended).    A method of producing a transistor,  
2                    comprising forming a source electrode and a drain electrode on both ends  
3                    of the carbon nanotube structure, respectively, and additionally a gate  
4                    electrode after forming a carbon nanotube structure by the method  
5                    according to ~~any one of claims 1 to 15~~ claim 1.

1                    17 (Currently Amended).    A method of producing a wiring  
2                    structure of carbon nanotube, comprising forming a carbon nanotube  
3                    structure by the method according to ~~any one of claims 1 to 15~~ claim 1.

1                    18 (Original).                A nanotube structure, comprising a substrate  
2                    and a carbon nanotube placed above said substrate,

3                    wherein the entire of said carbon nanotube is separated from said  
4                    substrate.

1                    19 (Original).            A carbon nanotube structure, comprising:  
2                                    a substrate;  
3                                    a first carbon dot and a second carbon dot formed on said  
4                    substrate; and  
5                                    a carbon nanotube connecting the gap between said first and  
6                    second carbon dots.

1                    20 (Original).            The carbon nanotube structure according to  
2                    claim 19, wherein said first or second carbon dot contains an aromatic  
3                    hydrocarbon.

1                    21 (Currently Amended).    The carbon nanotube structure  
2                    according to ~~claim 19 or 20~~ claim 19, wherein said carbon nanotube is  
3                    formed so that it is separated from said substrate.

1                    22 (Currently Amended).    A transistor, comprising the carbon  
2                    nanotube structure according to ~~any one of claims 18 to 21~~ claim 18.

1                    23 (Currently Amended).    A wiring structure, comprising the  
2                    carbon nanotube structure according to ~~any one of claims 18 to 21~~ claim  
3                    18.

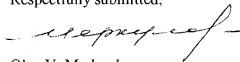
## REMARKS

The title of the application has been changed from the title of the PCT application.

Claims 1- 23 are currently pending in the application. By this amendment, claims 3, 5, 6, 7, 8, 9, 13 to 17, and 21 to 23 are amended to avoid multiple dependent claim format. No new matter is added.

Please proceed to examination on the merits.

Respectfully submitted,



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